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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,691	03/30/2001	William Hreha	PA-Y1007	9223

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EXAMINER	
SALL, EL HADJI MALICK	

ART UNIT	PAPER NUMBER
2157	7

DATE MAILED: 06/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/822,691	HREHA ET AL.	
	Examiner	Art Unit	
	El Hadji M Sall	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 6 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. DETAILED ACTION

This action is responsive to the application filed on March 30, 2001. Claims 1-18 are pending. Claims 1-18 represent dynamic resource allocation architecture for differentiated services over broadband communication network.

2. *Claim Rejections - 35 USC § 112*

Claim 10 is rejected under 35 USC 112, 2nd paragraph because the term "substantially" is broad. It renders the claim indefinite in that it fails to point out what is included or excluded by the claim language. For purpose of prior art rejection in this office action, "substantially" in claim 10 will be omitted.

Claim 15 recites the limitation "the random access mode" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. For purpose of prior art rejection in this office action, "the random access mode" in claim 15 will be construed as "the random assignment mode" specified in claim 12.

3. *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3-5,8-9 of U.S. Patent No. 6,400,696. Although the conflicting claims are not identical, they are not patentably distinct from each other because they recite means or steps that are substantially the same and that would have been obvious to one of ordinary skill in the art.

5. ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-2, 4-8, and 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Awadallah et al. U.S. 6,449,251 in view of Connors U.S. 6,449,267.

Awadallah teaches the invention as claimed including dynamic resource allocation architecture for differentiated services over broadband communication networks.

As to claim 1, Awadallah teaches a system that comprises a gateway that interfaces to an internet provider or corporate network, a local area network edge device, and one or more personal computers coupled by way of a network to the local area network edge device, a dynamic resource allocation system that supports differentiated services with different levels of priority, comprising:

An Internet protocol network that comprises (figure 1):

A classifier for identifying specific types of messages (figure 2),

Awadallah fails to teach a dynamic assignment/multiple access (DAMA) communication protocol for transmitting data over the system.

However, Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches a dynamic assignment/multiple access (DAMA) communication protocol for transmitting data over the system (column 2, lines 38-47, Connors discloses fig. 1...a communication system using a demand assignment multiple access (DAMA) protocol...DAMA based MAC protocols comprise two primary elements: (1) a bandwidth request mechanism and (2) a mechanism for coordinating transmission).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors so that a dynamic assignment/multiple access (DAMA) is provided to coordinate a transmission of data over the system. One would have been motivated to do so to allow the DAMA channel buffer to accept the input data received at the first node.

As to claim 2, Awadallah teaches the dynamic resources allocation system recited in claim 1.

Awadallah fails to teach the satellite is a non-processing satellite.

However, Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches the satellite is a non-processing satellite (column 2, lines 62-64, Connors discloses in a satellite network 100, the AA 108 resides ...at a terrestrial master control station...).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors to have a non-processing satellite. One would have been motivated to do so to have the allocating agent (AA) resided at a terrestrial master control station.

As to claim 4, Awadallah teaches the dynamic resources allocation system recited in claim 1.

Awadallah fails to teach the satellite is a processing satellite.

However, Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches the satellite is a processing satellite (column 2, lines 62-64, Connors discloses in a satellite network 100, the AA 108 resides ...at the satellite...).

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors to have a processing satellite. One would have been motivated to do so to have the allocating agent (AA) resided at the satellite.

As to claim 5, Awadallah teaches the dynamic resources allocation system recited in claim 1 wherein the DAMA communication protocol comprises an application detection algorithm (column 3, lines 48-60, Awadallah discloses this packet mapper...monitors the port number negotiation and selection for those applications an protocols that dynamically select data exchange port numbers...intercepts those data

packets with dynamic port numbers and performs port swapping before routing these packets to the next hop router).

As to claim 6, Awadallah teaches the dynamic resource allocation system recited in claim 1.

Awadallah fails to teach the DAMA communication protocol comprises a resource requirement estimation algorithm that is based on queue statistics versus performance statistics.

However, Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches the DAMA communication protocol comprises a resource requirement estimation algorithm that is based on queue statistics versus performance statistic (column 12, lines 1-6, Connors discloses the channel selection module...and the random access queue ...to form delay estimates of the last packet in each queue).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors to have an estimation algorithm based on queue statistic. One would have been motivated to do so that data packet are removed from the front of the DAMA queue (DQ) and placed in the random access queue (RAQ).

As to claim 7, Awadallah teaches the dynamic resource allocation system recited in claim 1.

Awadallah fails to teach the DAMA communication protocol comprises a resource request that generates a resource request to set required resources.

However, Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches the DAMA communication protocol comprises a resource request that generates a resource request to set required resources (column 4, lines 45-49, Connors discloses the method

comprises...transmitting a resource request having a resource metric from the first node to an allocation of resource units according to the resource metric).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors by introducing a DAMA protocol that comprises a resource request that generates a resource request to set required resources. One would have been motivated to do so to have a data storage device in the system tangibly embodying instructions.

As to claim 8, Awadallah teaches the dynamic resource allocation system recited in claim 1.

Awadallah fails to teach the DAMA communication protocol comprises a resource request that sends raw queue statistics to the gateway to set required resources.

However Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches the DAMA communication protocol comprises a resource request that sends raw queue statistics to the gateway to set required resources (column 4, lines 60-67, Connors discloses the apparatus comprises...a DAMA channel buffer...the resource unit request module for generating a resource request metric when indicated by an information rate of the input data, an for receiving an allocation or resource units via a receiver...for dequeuing input data from the DAMA).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors by introducing a DAMA protocol that comprise a resource request that sends raw queue statistics to the gateway to set required resources. One would have been motivated to so to allow the request metric to be used with a channel that is both random access (RA) and DAMA.

As to claim 10, Awadallah teaches the dynamic resource allocation system recited in claim 1.

Awadallah fails to teach the gateway comprises an algorithm that accumulates all requests received at substantially the same time.

However Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches the gateway comprises an algorithm that accumulates all requests received at the same time (column 9, lines 58-62, Connors discloses the measured size of the received data packets is accumulated over time window Tc, as shown in 608, wherein the time window Tc is determined...).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors by putting in the gateway an algorithm that accumulates all requests received at substantially the same time. One would have been motivated to so to allow the new measured size of the received data packets accumulated over the time window Tc is used to compute the packet flow rate metric (PFRM).

As to claim 11, Awadallah teaches the dynamic resource allocation system recited in claim 1 wherein the gateway comprises an algorithm that functions to assign each edge device a time and frequency resources based upon service classes and consumer profile for each current and previous request (figure 2).

As to claim 12, Awadallah teaches the dynamic resource allocation system recited in claim 1 wherein the DAMA communication protocol comprises three modes, including fixed assignment, reservation assignment, and random assignment modes (column 3, lines 37-45, Awadallah discloses existing network devices...allow administrator to pre-allocate or reserve a range of ports for certain priority levels...for their data streams, network devices cannot predict these dynamics port numbers and therefore cannot serve these data streams with priorities)

As to claim 13, Awadallah teaches the dynamic resource allocation system recited in claim 12 wherein, in the fixed assignment mode, a certain amount of

bandwidth is allocated for the highest priority users (column 3,lines 48-53, Awadallah discloses...applications and protocols that dynamically select data exchange port numbers, maintains a proxy table that maps dynamic port numbers to reserved port numbers for high priority traffics)

As to claim 14, Awadallah teaches the dynamic resource allocation system recited in claim 12 wherein, in the reserved assignment mode, reservation bandwidth is allocated for users to request their demand without knowledge of others request transmissions (column 4, lines 14-19, Awadallah discloses...a network administrator reserves a range of high priority...without requiring any further changes to pre-existing applications and corporate networks)

As to claim 15, Awadallah teaches the dynamic resource allocation system recited in claim 12 wherein, in the random access mode, users transmit the data without making reservation (column 7, lines 14-19, Awadallah discloses ...unmapped outbound packets can still be assigned to their corresponding priority queues...packets of this session will not be treated with high priority in other routers since their port number is out of the reserved high priority port range)

As to claim 16, Awadallah teaches the dynamic resource allocation system recited in claim 1.

Awadallah fails to teach the DAMA communication protocol comprises a collision resolution algorithm.

However, Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches the DAMA communication protocol comprises a collision resolution algorithm (column 6, lines 34-38, Connors discloses packets use random access channel only during scene changes, collisions on the RA channel only occur if scene changes occurs simultaneously...).

It would have been obvious to one of ordinary skill in the art the time of the invention to modify Awadallah in view of Connors by adding the DAMA communication

protocol with a collision resolution algorithm. One would have been motivated to do so to monitor the packet loss.

As to claim 17, Awadallah teaches the dynamic resource allocation system recited in claim 12.

Awadallah fails to teach the boundary between the random access mode and the reservation mode is movable in order to reduce the number of collisions whenever there are more best effort users using the system.

However, Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches the boundary between the random access mode and the reservation mode is movable in order to reduce the number of collisions whenever there are more best effort users using the system (column 5, lines 6-11, Connors discloses since packets are moved from the DQ to RAQ on NL packet 1108 basis, random transmission patterns will remain unchanged until the entire NL packet 1108 has been transmitted. For light network loads, this amounts to a new slot pattern each TDMA frame 1104, minimizing the effort of possible collisions).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors to have the reservation mode and the random access mode movable. One would have been motivated to so to minimize the effort of possible collision.

As to claim 18, Awadallah teaches the dynamic resource allocation system recited in claim 1.

Awadallah fails to teach the DAMA communication protocol comprises a bandwidth request algorithm, a connection acceptance algorithm, a bandwidth usage detection algorithm, and a resource assignment algorithm.

However, Connors teaches a method and apparatus for medium access control from integrated services packet-switched satellite. Connors teaches the DAMA communication protocol comprises a bandwidth request algorithm, a connection

acceptance algorithm, a bandwidth usage detection algorithm, and a resource assignment algorithm (figure 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors to have a connection acceptance algorithm, a bandwidth usage detection algorithm, and a resource assignment algorithm. One would have been motivated to do so to decide for how much channel resources to allocate to each terminal using an allocation algorithm.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Awadallah in view of Connors, and further in view of Cousineau U.S. 6,400,706.

Awadallah teaches the invention as claimed including dynamic resource allocation architecture for differentiated services over broadband communication networks.

As to claim 3, Connors teaches the dynamic resource allocation system recited in claim 2.

Connors fails to teach that the non-processing satellite implements a bent pipe communication link between the local area network edge device and the gateway.

However, Cousineau teaches a system and method for re-synchronizing a phase-independent first-in first-out memory. Cousineau teaches the non-processing satellite implements a bent pipe communications link between the local area network edge device and the gateway (column 4, lines 52-56, Cousineau discloses ...satellite...effectively functions as "bent pipe" repeaters. Each satellite...receives a communications traffic signal, such as a voice signal or a data signal, from either a communications device...or from a gateway...)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Connors in view of Cousineau so that a bent

pipe communication link between the local area network edge device and the gateway is established through the non-processing satellite. One would have been motivated to do so in order to use the satellite as a repeater.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Awadallah in view of Connors as applied to claim 1 above, and further in view of Maarten et al. (ACM Digital Library).

Awadallah teaches the invention as claimed including dynamic resource allocation architecture for differentiated services over broadband communication networks.

As to claim 9, Awadallah teaches the dynamic resource allocation system recited in claim 1 and a gateway assigned resources.

Awadallah fails to teach the DAMA communication protocol comprises a weighted fair queuing algorithm that performs a weighted fair queuing that drains the queues while effectively utilizing the gateway assigned resources.

However, Maarten teaches a weighted fair queuing algorithm (figure 1, page 34)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Awadallah in view of Maarten so that the system includes a weighted fair queuing that drains the queues while effectively utilizing the gateway assigned resources. One would have been motivated to do so to compute a quantile of the queuing delay.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to El Hadji M Sall whose telephone number is 703-306-4153. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 703 308-7562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

El Hadji Sall
Patent Examiner
Art Unit: 2157

SALEH NAJJAR
PRIMARY EXAMINER

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